O3C 0

OIPE

RAW SEQUENCE LISTING   DATE: 08/14/2002
PATENT APPLICATION: US/09/864,464   TIME: 09:48:41

Input Set : A:\BB-1193 USDIV Corrected Seq List.txt
Output Set: N:\CRF3\08142002\I864464.raw

```
 3 <110> APPLICANT: Falco, Savario Carl
 4         Famodu, Omolayo O.
 5         Simmons, Carl R.
 7 <120> TITLE OF INVENTION: Plant Aminoacyl-tRNA Synthetase
 9 <130> FILE REFERENCE: BB-1193
11 <140> CURRENT APPLICATION NUMBER: 09/864,464
12 <141> CURRENT FILING DATE: 2001-05-24
14 <150> PRIOR APPLICATION NUMBER: 60/093,530
15 <151> PRIOR FILING DATE: 1998-07-21
17 <160> NUMBER OF SEQ ID NOS: 37
19 <170> SOFTWARE: Microsoft Office 97
21 <210> SEQ ID NO: 1
22 <211> LENGTH: 528
23 <212> TYPE: DNA
24 <213> ORGANISM: Zea mays
26 <400> SEQUENCE: 1
27 gcacgaggtg aacaaggaga tggcctcata ccgtttatac actgtcgtac ccagactcct   60
28 tggtctcatt gacagcacaa caaactggta cattcgattc aaccgaaagc gactcaaggg  120
29 agagaacggc cttgacgata cccttcatgc cctaaacacc ctttttgagg ttctgttcac  180
30 tttgtgccgt ggactggcac cttttacccc tttccttact gacaacatct acctcaagct  240
31 tctacctcac attcctaagg agctgcaaag tgcagatccc cgaagcgtgc acttcctgcc  300
32 attccccgat gttcgcgaag agctgttcga tgaagaggtg gagcgacgtg ttggtcgcat  360
33 gcagcgtgtc attgaacttg ctcgtgtatc gcgtgaacgt cgcgccattg gtctcaagca  420
34 gcctctcaag acactggtgg tcattcactc cgatcctcaa tatcttgagg atgtcaagtc  480
35 ccttgagaag tatatcagcg aagagttgaa tgtgcgagac ctcgtgct                528
37 <210> SEQ ID NO: 2
38 <211> LENGTH: 175
39 <212> TYPE: PRT
40 <213> ORGANISM: Zea mays
42 <400> SEQUENCE: 2
43 His Glu Val Asn Lys Glu Met Ala Ser Tyr Arg Leu Tyr Thr Val Val
44   1               5                  10                  15
46 Pro Arg Leu Leu Gly Leu Ile Asp Ser Thr Thr Asn Trp Tyr Ile Arg
47              20                  25                  30
49 Phe Asn Arg Lys Arg Leu Lys Gly Glu Asn Gly Leu Asp Asp Thr Leu
50          35                  40                  45
52 His Ala Leu Asn Thr Leu Phe Glu Val Leu Phe Thr Leu Cys Arg Gly
53      50                  55                  60
55 Leu Ala Pro Phe Thr Pro Phe Leu Thr Asp Asn Ile Tyr Leu Lys Leu
56  65                  70                  75                  80
58 Leu Pro His Ile Pro Lys Glu Leu Gln Ser Ala Asp Pro Arg Ser Val
59                  85                  90                  95
61 His Phe Leu Pro Phe Pro Asp Val Arg Glu Glu Leu Phe Asp Glu Glu
```

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Input Set : **A:\BB-1193 USDIV Corrected Seq List.txt**
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```
62              100             105             110
64 Val Glu Arg Arg Val Gly Arg Met Gln Arg Val Ile Glu Leu Ala Arg
65          115             120             125
67 Val Ser Arg Glu Arg Arg Ala Ile Gly Leu Lys Gln Pro Leu Lys Thr
68      130             135             140
70 Leu Val Val Ile His Ser Asp Pro Gln Tyr Leu Glu Asp Val Lys Ser
71 145             150             155             160
73 Leu Glu Lys Tyr Ile Ser Glu Glu Leu Asn Val Arg Asp Leu Val
74              165             170             175
76 <210> SEQ ID NO: 3
77 <211> LENGTH: 451
78 <212> TYPE: DNA
79 <213> ORGANISM: Oryza sativa
81 <220> FEATURE:
82 <221> NAME/KEY: unsure
83 <222> LOCATION: (386)
84 <223> OTHER INFORMATION: n=a,c,g or t
85 <223> OTHER INFORMATION: n=a,c,g or t
87 <220> FEATURE:
88 <221> NAME/KEY: unsure
89 <222> LOCATION: (417)
90 <223> OTHER INFORMATION: n=a,c,g or t
92 <220> FEATURE:
93 <221> NAME/KEY: unsure
94 <222> LOCATION: (443)
95 <223> OTHER INFORMATION: n=a,c,g or t
97 <220> FEATURE:
98 <221> NAME/KEY: unsure
99 <222> LOCATION: (449)
100 <223> OTHER INFORMATION: n=a,c,g or t
```

W--> 102 **<400> 3**
```
103 cttccccctc tcttgttcca agcccctcct ccccttaccc ccccgccgcc gccgccgccg  60
104 ccgcctcatc acccgaaacc ctagccccat tcgccgcggt cgccgcctca cccgaaaccc 120
105 tagccccatt cgccgccggg gtcgcggcct caggagcgga ggccatggag gacgtctgcg 180
106 aggggaagga cttctccttc cccgcggagg aggagcgcgt gctcaagctg tggtcggagc 240
107 tcgacgcctt ccacgagcag ctccgccgca cgaagggcgg cgaggagttc atcttctacg 300
108 acgggccccc gttcgccacc ggcctcccgc actatggcca catcctcgcg ggcacaatca 360
```
W--> 109 **aggacgtggt cacccgccac cagtcnatgc gcggccgcca cgtctcccgc cgcttcnggt 420**
W--> 110 **gggactgcca tggctccccg tcnagttcna t   451**
```
112 <210> SEQ ID NO: 4
113 <211> LENGTH: 83
114 <212> TYPE: PRT
115 <213> ORGANISM: Oryza sativa
117 <220> FEATURE:
118 <221> NAME/KEY: UNSURE
119 <222> LOCATION: (76)
120 <223> OTHER INFORMATION: Xaa = ANY AMINO ACID
122 <400> SEQUENCE: 4
123 Phe Ser Phe Pro Ala Glu Glu Glu Arg Val Leu Lys Leu Trp Ser Glu
```

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Input Set : **A:\BB-1193 USDIV Corrected Seq List.txt**
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```
124    1                    5                    10                   15
126  Leu Asp Ala Phe His Glu Gln Leu Arg Arg Thr Lys Gly Gly Glu Glu
127              20                   25                   30
129  Phe Ile Phe Tyr Asp Gly Pro Pro Phe Ala Thr Gly Leu Pro His Tyr
130          35                   40                   45
132  Gly His Ile Leu Ala Gly Thr Ile Lys Asp Val Val Thr Arg His Gln
133          50                   55                   60
```
W--> 135 Ser Met Arg Gly Arg His Val Ser Arg Arg Phe Xaa Trp Asp Cys His
```
136      65                   70                   75                   80
138  Gly Ser Pro
141  <210> SEQ ID NO: 5
142  <211> LENGTH: 575
143  <212> TYPE: DNA
144  <213> ORGANISM: Glycine max
146  <220> FEATURE:
147  <221> NAME/KEY: unsure
148  <222> LOCATION: (21)
149  <223> OTHER INFORMATION: n=a,c,g or t
151  <220> FEATURE:
152  <221> NAME/KEY: unsure
153  <222> LOCATION: (219)
154  <223> OTHER INFORMATION: n=a,c,g or t
156  <220> FEATURE:
157  <221> NAME/KEY: unsure
158  <222> LOCATION: (500)
159  <223> OTHER INFORMATION: n=a,c,g or t
161  <220> FEATURE:
162  <221> NAME/KEY: unsure
163  <222> LOCATION: (525)
164  <223> OTHER INFORMATION: n=a,c,g or t
166  <220> FEATURE:
167  <221> NAME/KEY: unsure
168  <222> LOCATION: (564)
169  <223> OTHER INFORMATION: n=a,c,g or t
171  <400> SEQUENCE: 5
```
W--> 172 taccttatca actcacctgt ngtgcgtgct gagccacttc gtttcaagaa agaaggagtt   60
```
173  tatggtgttg ttagggatgt tttcctccct tggtataatg catatcggtt ccttgttcaa  120
174  aatgcaaaga gggttgaagt tgaaggtcta gcaccttttg ttccctttga tcaggccaca  180
```
W--> 175 cttctgaact caacgaatgt tcttgatcaa tggattaant cagccaccca aagccttatt 240
```
176  cattttgtcc gacaagaaat ggatggttat cgcctttaca cagtggttcc ttaccttctg  300
177  aagtttcttg ataaccttac aaatatttat gtaaggttca atcgtaagag acttaaaggt  360
178  cgttctgggg aagaagactg caggatagca ctatcaactc tttaccatgt gcttttgtta  420
179  tcctgtaaag tgatggctcc ttttacacct ttcttcactg aggtgctcta tcaaaatatg  480
```
W--> 180 cgaaaagttt ctaatggtcn gagggaagcg tacactattg cggtnttcct ccagaagaag 540
W--> 181 gaggaggggg gacgactttt gcgngtgttt ttgga   575
```
183  <210> SEQ ID NO: 6
184  <211> LENGTH: 106
185  <212> TYPE: PRT
186  <213> ORGANISM: Glycine max
```

```
188 <220> FEATURE:
189 <221> NAME/KEY: UNSURE
190 <222> LOCATION: (18)
191 <223> OTHER INFORMATION: Xaa = ANY AMINO ACID
193 <400> SEQUENCE: 6
194 Phe Asp Gln Ala Thr Leu Leu Asn Ser Thr Asn Val Leu Asp Gln Trp
195  1               5                  10                  15
W--> 197 Ile Xaa Ser Ala Thr Gln Ser Leu Ile His Phe Val Arg Gln Glu Met
198              20                  25                  30
200 Asp Gly Tyr Arg Leu Tyr Thr Val Val Pro Tyr Leu Leu Lys Phe Leu
201          35                  40                  45
203 Asp Asn Leu Thr Asn Ile Tyr Val Arg Phe Asn Arg Lys Arg Leu Lys
204       50                  55                  60
206 Gly Arg Ser Gly Glu Glu Asp Cys Arg Ile Ala Leu Ser Thr Leu Tyr
207  65                  70                  75                  80
209 His Val Leu Leu Leu Ser Cys Lys Val Met Ala Pro Phe Thr Pro Phe
210                  85                  90                  95
212 Phe Thr Glu Val Leu Tyr Gln Asn Met Arg
213              100                 105
215 <210> SEQ ID NO: 7
216 <211> LENGTH: 572
217 <212> TYPE: DNA
218 <213> ORGANISM: Triticum aestivum
220 <400> SEQUENCE: 7
221 gcacgagctt tagggtgatt gccgataact atgtgactga tgatagtgga accggtgttg  60
222 tccattgtgc tcctgcattt ggtgaagatg atcatcgcgt ttgccttagt gctggaatta 120
223 ttgaggctag tggacttgtt gtcgctgttg atgatgatgg tcacttcatt gagaagatat 180
224 ctcagttcaa agggcgacat gtcaaagagg ctgacaagga tatcatcaat gctgttaagg 240
225 ataaaggaag acttgttagc aaagggagca ttgagcactc ttatccgtat tgttggcgct 300
226 cgggcactcc tcttatttac cgggctgttc caagctggtt tatcaaggtt gaaaagatca 360
227 gggatcagtt actagaatgc aacaaggaga cctactgggt tccagattat gtcaaggaaa 420
228 agagattcca taactggcta gaaggtgcta gggactgggc tgttagcaga agtagattct 480
229 ggggtactcc acttccagtg tggatcagcc aagatggtga agaaaaaaaa aaaaaaaaaa 540
230 aaaaaaaaaa aaagaaaaaa aaaaaaaaaa aa                                572
232 <210> SEQ ID NO: 8
233 <211> LENGTH: 173
234 <212> TYPE: PRT
235 <213> ORGANISM: Triticum aestivum
237 <400> SEQUENCE: 8
238 Thr Ser Phe Arg Val Ile Ala Asp Asn Tyr Val Thr Asp Asp Ser Gly
239  1               5                  10                  15
241 Thr Gly Val Val His Cys Ala Pro Ala Phe Gly Glu Asp Asp His Arg
242              20                  25                  30
244 Val Cys Leu Ser Ala Gly Ile Ile Glu Ala Ser Gly Leu Val Val Ala
245          35                  40                  45
247 Val Asp Asp Asp Gly His Phe Ile Glu Lys Ile Ser Gln Phe Lys Gly
248       50                  55                  60
250 Arg His Val Lys Glu Ala Asp Lys Asp Ile Ile Asn Ala Val Lys Asp
251  65                  70                  75                  80
```

RAW SEQUENCE LISTING   DATE: 08/14/2002
PATENT APPLICATION: **US/09/864,464**   TIME: 09:48:41

Input Set : **A:\BB-1193 USDIV Corrected Seq List.txt**
Output Set: **N:\CRF3\08142002\I864464.raw**

```
253 Lys Gly Arg Leu Val Ser Lys Gly Ser Ile Glu His Ser Tyr Pro Tyr
254                 85              90                95
256 Cys Trp Arg Ser Gly Thr Pro Leu Ile Tyr Arg Ala Val Pro Ser Trp
257             100             105             110
259 Phe Ile Lys Val Glu Lys Ile Arg Asp Gln Leu Leu Glu Cys Asn Lys
260         115             120             125
262 Glu Thr Tyr Trp Val Pro Asp Tyr Val Lys Glu Lys Arg Phe His Asn
263     130             135             140
265 Trp Leu Glu Gly Ala Arg Asp Trp Ala Val Ser Arg Ser Arg Phe Trp
266 145             150             155             160
268 Gly Thr Pro Leu Pro Val Trp Ile Ser Gln Asp Gly Glu
269             165             170
271 <210> SEQ ID NO: 9
272 <211> LENGTH: 2175
273 <212> TYPE: DNA
274 <213> ORGANISM: Zea mays
276 <400> SEQUENCE: 9
277 acttgagcct ccaccttctc cgcgtctcac cttcttctcc gttctccttc cgctcccctc   60
278 ttcacaacga agccctagtg tcccgcgaca tggcatctgg tctggaggag aaactcgcgg  120
279 ggctctcaac gggcggcgac gggcaaaatc ctccgccggc gggtgagggc ggagaggagc  180
280 cgcagctctc gaagaatgcg aagaagagag aggagaagag gaagaagctg gaagaggagc  240
281 ggaggctcaa ggaggaagag aagaagaaca aggctgcggc tgccagtgga aaacctcaga  300
282 aggcatctgc tgctgacgat gatgacatgg atcccactca atactatgag aataggctca  360
283 aggctcttga ttcactgaag gccacaggtg taaaccccta tccccataag ttcccggttg  420
284 gcatttctgt acccgaatac attgagaagt acaggacctt gagcgagggg gagaagctta  480
285 cagatgtggc agagtgttta gctgggagga tcatgaacaa gagaacatcg tcgtcgaagc  540
286 tattcttta tgatctttat ggtggtggca tgaaggttca agtgatggct gatgccagga  600
287 cctcagagtt ggatgaagct gaattttcta agtaccactc aggtgtgaag cgaggtgata  660
288 ttgttggcat atgtggatat ccaggaaaaa gcaaccgagg ggagcttagt gtatttccaa  720
289 agagatttgt cgtcctctct ccatgtcttc atatgatgcc tcgacagaag ggtgaaggaa  780
290 gtgcagtgcc tgtaccgtgg actccaggaa tgggtaggaa catcgaaaat tatgtttga  840
291 gggaccagga aactcggtat cgtcaaaggt atcttgatct tatggtaaac catgaagtga  900
292 ggcacatctt caagacacga tctaaaattg tctcatttat ccgaaagttt cttgatgacc  960
293 gtgaatttt ggaggtggag actccgatga tgaacatgat tgctggtgga gcagctgcaa 1020
294 ggccttttgt tacacatcac aatgaattaa acatgcggct ttttatgcgc attgctcctg 1080
295 aattatatct gaaggaactg gttgttggtg gattggaccg tgtttatgaa attggaaagc 1140
296 aattcaggaa tgaaggaatt gatttaacac acaatcctga attcacaact tgtgaatttt 1200
297 atatggcgta tgcagattat aatgatttga tggagcttac tgaaaccatg ttgtcaggca 1260
298 tggttaagga cctgacaggt ggctataaga taaaatatca tgcaaatgga gttactaacc 1320
299 ccccaataga aattgatttc acgcctccct tcagaaggat agatatgatt aaagatttgg 1380
300 aggctatggc caatctcagt ataccaaaag atctatcaag tgatgaagcg aatcgttatt 1440
301 tgatagaagc atgtgtgaag tatgatgtga aatgtccacc tccccaaacg acatcgcggt 1500
302 tgcttgacaa gttggttggc catttcttgg aggagacatg tgtgaatcca acatttatca 1560
303 tcaatcatcc agagataaty agtccattag caaagtggca taggtcccga cctggattga 1620
304 ctgagaggtt cgagttgttt gttaacaaac atgaggtgtg caacgcatac acagagttga 1680
305 acgatcctgt tgtgcagagg caacggtttg aggaacaact aaaggaccgt caatctggtg 1740
306 atgacgaagc tatggctttg gacgaaacat tctgtactgc ccttgagtat ggtttggcac 1800
307 caacaggtgg ttggggcttg ggaattgatc gcctcacgat gttgctaaca gattctcaga 1860
308 acattaagga agtacttcta ttcccggcta tgaagcctca agagtagtaa tccacagcca 1920
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 08/14/2002
PATENT APPLICATION: **US/09/864,464**   TIME: 09:48:42

Input Set : **A:\BB-1193 USDIV Corrected Seq List.txt**
Output Set: **N:\CRF3\08142002\I864464.raw**

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 386,417,443,449
Seq#:4; Xaa Pos. 76
Seq#:5; N Pos. 21,219,500,525,564
Seq#:6; Xaa Pos. 18
Seq#:11; N Pos. 396,408,478,536,570,573,597,598,603
Seq#:14; Xaa Pos. 392,393,394
Seq#:21; N Pos. 337,379
Seq#:27; N Pos. 11,40,42,91,118,183,266,304,503,632,694
Seq#:28; Xaa Pos. 13,14,30,39,61,88,101,167
Seq#:29; N Pos. 439,466,526,536,564

VERIFICATION SUMMARY   DATE: 08/14/2002
PATENT APPLICATION: **US/09/864,464**   TIME: 09:48:42

Input Set : **A:\BB-1193 USDIV Corrected Seq List.txt**
Output Set: **N:\CRF3\08142002\I864464.raw**

```
L:102 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:3
L:109 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:360
L:110 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:420
L:135 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:64
L:172 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0
L:175 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:180
L:180 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:480
L:181 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:540
L:197 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:16
L:493 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:360
L:494 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:420
L:495 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:480
L:496 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:540
L:497 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:600
L:655 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:384
L:966 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:300
L:967 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:360
L:1263 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:0
L:1264 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:60
L:1266 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:180
L:1267 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:240
L:1268 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:300
L:1271 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:480
L:1273 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:600
L:1274 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:660
L:1317 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:0
L:1320 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:16
L:1323 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:32
L:1326 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:48
L:1332 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:80
L:1335 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:96
L:1347 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:160
L:1388 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:420
L:1389 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:480
L:1390 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:540
```